

RECEIVED

MAR 21 2002

TECH CENTER 1600/2900



OIPE

ENTERED

RAW SEQUENCE LISTING

DATE: 03/06/2002

PATENT APPLICATION: US/09/145,916C

TIME: 10:03:34

#19

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\03062002\I145916C.raw

SEQUENCE LISTING

1 (1) GENERAL INFORMATION:

2 (i) APPLICANT: Simons, Michael
 3 Volk, Rudiger
 4 Horowitz, Arie

5 (ii) TITLE OF INVENTION: Stimulation of angiogenesis
 6 via enhanced endothelial expression of syndecan-4
 7 core proteins

8 (iii) NUMBER OF SEQUENCES: 24

9 (iv) CORRESPONDENCE ADDRESS:

10 (A) ADDRESSEE: David Prashker, Esq.
 11 (B) STREET: P.O. Box 5387
 12 (C) CITY: Magnolia
 13 (D) STATE: Massachusetts
 14 (E) COUNTRY: USA
 15 (F) ZIP: 01930

16 (v) COMPUTER READABLE FORM:

17 (A) MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
 18 (B) COMPUTER: Dell PC
 19 (C) OPERATING SYSTEM: MS DOS
 20 (D) SOFTWARE: Microsoft Word version 97

21 (vi) CURRENT APPLICATION DATA:

C--> 22 (A) APPLICATION NUMBER: US/09/145,916C
 C--> 23 (B) FILING DATE: 02-Sep-1998
 24 (C) CLASSIFICATION: Unknown

25 (viii) ATTORNEY/AGENT INFORMATION:

26 (A) NAME: David Prashker, Esq.
 27 (B) REGISTRATION NUMBER: 29,693
 28 (C) REFERENCE/DOCKET NUMBER: BIS-039

29 (ix) TELECOMMUNICATION INFORMATION:

30 (A) TELEPHONE: (978) 525-3794

31 (2) INFORMATION FOR SEQ ID NO: 1:

32 (i) SEQUENCE CHARACTERISTICS:

33 (A) LENGTH: 762 base pairs
 34 (B) TYPE: nucleic acid
 35 (C) STRANDEDNESS: single
 36 (D) TOPOLOGY: linear

37 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

39 ATGAGACGTG CGGCGCTCTG GCTTTGGCTC TGC GCGCTGG CGCTGCGCCT GCAGCCTGCC 60
 40 CTCCCGCAAA TTGTCACCGC AAATGTGCCT CCTGAAGACC AAGATGGCTC TGGGGACGAC 120
 41 TCAGACA ACT TCTCTGGCTC AGGCACAGGT GCTTTGCCAG ATATGACTTT GTCACGGCAG 180
 42 ACACCTTCCA CTTGGAAGGA TGTGTGGCTC CTGACAGCTA CACCCACAGC TCCAGAACCC 240
 43 ACCAGCAGGG ATACCGAGGC CACCCTCACC TCTATCCTGC CGGCTGGAGA GAAGCCTGAG 300

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/145,916C

DATE: 03/06/2002

TIME: 10:03:34

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\03062002\I145916C.raw

```

44 GAGGGAGAGC CCGTGGCCCA CGTGGAAGCA GAGCCTGACT TCACTGCTCG GGACAAGGAG 360
45 AAGGAGGCCA CCACCAGGCC TAGGGAGACC ACACAGCTCC CAGTCACCCA ACAGGCCTCA 420
46 ACAGCAGCCA GAGCCACCAC GGCCCAGGCA TCTGTACAGT CTCATCCCCA CGGGGATGTG 480
47 CAACCTGGCC TCCACGAGAC CTTGGCTCCC ACAGCACCCG GCCAACCTGA CCATCAGCCT 540
48 CCAAGTGTGG AGGATGGAGG CACTTCTGTC ATCAAAGAGG TTGTGGAGGA TGAAACTACC 600
49 AATCAGCTTC CTGCAGGAGA GGGCTCTGGA GAACAAGACT TCACCTTTGA AACATCTGGG 660
50 GAGAACACAG CTGTGGCTGG CGTCGAGCCT GACCTTCGGA ATCAGTCCCC AGTGGATGAA 720
51 GGAGCCACAG GTGCTTCTCA GGGCCTTTTG GACAGGAAGG AA 762

```

53 (2) INFORMATION FOR SEQ ID NO: 2:

54 (i) SEQUENCE CHARACTERISTICS:

55 (A) LENGTH: 1020 base pairs

56 (B) TYPE: nucleic acid

57 (C) STRANDEDNESS: single

58 (D) TOPOLOGY: linear

59 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

```

61 GGCAGGAGGG AGGGAGCCAG AGGAAAAGAA GAGGAGGAGA AGGAGGAGGA CCCGGGGAGG 60
62 GAGGCGCGGC GCGGGAGGAG GAGGGGCGCA GCCGCGGAGC CAGTGGCCCC GCTTGGACGC 120
63 GCTGCTCTCC AGATACCCCC GGAGCTCCAG CCGCGCGGAT CGCGCGCTCC CGCCGCTCTG 180
64 CCCCTAAACT TCTGCCGTAG CTCCCTTTCA AGCCAGCGAA TTTATTCCTT AAAACCAGAA 240
65 ACTGAACCTC GGCACGGGAA AGGAGTCCGC GGAGGAGCAA AACCACAGCA GAGCAAGAAG 300
66 AGCTTCAGAG AGCAGCCTTC CCGGAGCACC AACTCCGTGT CGGGAGTGCA GAAACCAACA 360
67 AGTGAGAGGG CGCCGCGTTC CCGGGGCGCA GCTGCGGGCG GCGGGAGCAG GCGCAGGAGG 420
68 AGGAAGCGAG CGCCCCCGAG CCCCAGAGCC GAGTCCCCGA GCCTGAGCCG CAATCGCTGC 480
69 GGTACTCTGC TCCGGATTCT TGTGCGCGGG CTCGCCGAGC GCTGGGCAGG AGGCTTCGTT 540
70 TTGCCCTGGT TGCAAGCAGC GGCTGGGAGC AGCCGGTCCC TGGGGAATAT GCGGCGCGCG 600
71 TGGATCCTGC TCACCTTGGG CTTGGTGGCC TCGGTGTCGG CGGAGTCGAG AGCAGAGCTG 660
72 ACATCTGATA AAGACATGTA CCTTGACAAC AGCTCCATTG AAGAAGCTTC AGGAGTGTAT 720
73 CCTATTGATG ACGATGACTA CGTTCTGCG TCTGGCTCGG GAGCTGATGA GGATGTAGAG 780
74 AGTCCAGAGC TGACAACAAC TCGACCACTT CCAAAGATAC TGTTGACTAG TGCTGCTCCA 840
75 AAAGTGGAAG CCACGACGCT GAATATACAG AACAAGATAC CTGCTCAGAC AAAGTCACCT 900
76 GAAGAACTG ATAAAGAGAA AGTTCACCTC TCTGACTCAG AAAGGAAAAT GGACCCAGCC 960
77 GAAGAGGATA CAAATGTGTA TACTGAGAAA CACTCAGACA GTCTGTTTAA ACGGACAGAA 1020

```

79 (2) INFORMATION FOR SEQ ID NO: 3:

80 (i) SEQUENCE CHARACTERISTICS:

81 (A) LENGTH: 340 amino acids

82 (B) TYPE: amino acid

83 (C) STRANDEDNESS: single

84 (D) TOPOLOGY: linear

85 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

```

87 Gly Arg Arg Glu Gly Ala Arg Gly Lys Glu Glu Glu Glu Lys Glu Glu
88 1 5 10 15
89 Asp Pro Gly Arg Glu Ala Arg Arg Gly Arg Arg Arg Gly Ala Ala Ala
90 20 25 30
91 Glu Pro Val Ala Pro Leu Gly Arg Ala Ala Leu Gln Ile Pro Pro Glu
92 35 40 45
93 Leu Gln Pro Arg Gly Ser Arg Ala Pro Ala Ala Leu Pro Leu Asn Phe
94 50 55 60
95 Cys Arg Ser Ser Leu Ser Ser Gln Arg Ile Tyr Ser Leu Lys Pro Glu
96 65 70 75 80

```

RAW SEQUENCE LISTING

DATE: 03/06/2002

PATENT APPLICATION: US/09/145,916C

TIME: 10:03:34

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\03062002\I145916C.raw

```

97 Thr Glu Pro Arg His Gly Lys Gly Val Arg Gly Gly Ala Lys Pro Gln
98                               85                               90                               95
99 Gln Ser Lys Lys Ser Phe Arg Glu Gln Pro Ser Arg Ser Thr Asn Ser
100                               100                               105                               110
101 Val Ser Gly Val Gln Lys Pro Thr Ser Glu Arg Ala Pro Arg Ser Arg
102                               115                               120                               125
103 Gly Ala Ala Ala Gly Gly Gly Ser Arg Arg Arg Arg Arg Lys Arg Ala
104                               130                               135                               140
105 Pro Pro Ser Pro Glu Pro Glu Ser Pro Ser Leu Ser Arg Asn Arg Cys
106 145                               150                               155                               160
107 Gly Thr Leu Leu Arg Ile Arg Val Arg Gly Leu Ala Glu Arg Trp Ala
108                               165                               170                               175
109 Gly Gly Phe Val Leu Pro Trp Leu Gln Ala Ala Ala Gly Ser Ser Arg
110                               180                               185                               190
111 Ser Leu Gly Asn Met Arg Arg Ala Trp Ile Leu Leu Thr Leu Gly Leu
112                               195                               200                               205
113 Val Ala Cys Val Ser Ala Glu Ser Arg Ala Glu Leu Thr Ser Asp Lys
114                               210                               215                               220
115 Asp Met Tyr Leu Asp Asn Ser Ser Ile Glu Glu Ala Ser Gly Val Tyr
116 225                               230                               235                               240
117 Pro Ile Asp Asp Asp Asp Tyr Ala Ser Ala Ser Gly Ser Gly Ala Asp
118                               245                               250                               255
119 Glu Asp Val Glu Ser Pro Glu Leu Thr Thr Thr Arg Pro Leu Pro Lys
120                               260                               265                               270
121 Ile Leu Leu Thr Ser Ala Ala Pro Lys Val Glu Thr Thr Thr Leu Asn
122                               275                               280                               285
123 Ile Gln Asn Lys Ile Pro Ala Gln Thr Lys Ser Pro Glu Glu Thr Asp
124                               290                               295                               300
125 Lys Glu Lys Val His Leu Ser Asp Ser Glu Arg Lys Met Asp Pro Ala
126 305                               310                               315                               320
127 Glu Glu Asp Thr Asn Val Tyr Thr Glu Lys His Ser Asp Ser Leu Phe
128                               325                               330                               335
129 Lys Arg Thr Glu
130                               340

```

132 (2) INFORMATION FOR SEQ ID NO: 4:

133 (i) SEQUENCE CHARACTERISTICS:

134 (A) LENGTH: 1079 base pairs

135 (B) TYPE: nucleic acid

136 (C) STRANDEDNESS: single

137 (D) TOPOLOGY: linear

138 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

```

140 GCGCGCGCGC GCTGCTGAGC CGTCCTTGCG GCACGSSGAT GCGCGCGGAG CTGCGGCGCC 60
141 TCGCGGTGCT GCTGCTGCTG CTCAGCGCCC GCGCAGCGCT GGCTCAGCCG TGGCGCAATG 120
142 AGAACTACGA GAGGCCGGTG GACCTGGAGG GCTCTGGGGA TGATGATCCC TTTGGGGACG 180
143 ATGAACTGGA TGACATCTAC TCGGGCTCCG GCTCAGGCTA TTTTGAGCAG GAGTCAGGGT 240
144 TGGAGACAGC GGTCAGCCTC ACCACGGACA CGTCCGTCCC ACTGCCCACC ACGGTGGCCG 300
145 TGCTGCCTGT CACCTTGGTG CAGCCCATGG CAACACCCTT TGAGCTGTTC CCCACAGAGG 360
146 ACACGTCCCC TGAGCAAACA ACCAGCGTCT TGTATATCCC CAAGATAACA GAAGCACCAG 420
147 TGATCCCCAG CTGGAAAACA ACCACCGCCA GTACCACTGC CAGTGACTCC CCCAGTACCA 480

```

RAW SEQUENCE LISTING

DATE: 03/06/2002

PATENT APPLICATION: US/09/145,916C

TIME: 10:03:34

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\03062002\I145916C.raw

```

148 CCTCCACCAC CACCACCACG GCTGCTACCA CCACCACAAC CACCACCACC ATCAGCACCA 540
149 CTGTGGCCAC CTCCAAGCCC ACCACTACCC AGAGGTTCCT GCCCCCCTTT GTCACCAAGG 600
150 CAGCCACCAC CCGGGCCACC ACCCTGGAGA CGCCACCAC CTCCATCCCT GAAACCAGTG 660
151 TCCTGACAGA GGTGACCACA TCACGGCTTG TCCCCTCCAG CACAGCCAAG CCGAGGTCCC 720
152 TGCCAAAACC AAGCACTTCC AGGACTGCAG AACCCACGGA AAAAAGCACT GCCTTGCCCT 780
153 CCAGCCCCAC CACGCTGCCA CCCACAGAAG CCCCCCAGGT GGAGCCAGGG GAGTTGACGA 840
154 CAGTCCTCGA CAGTGACCTG GAAGTCCCAA CCAGTAGTGG CCCAGCGGG GACTTCGAGA 900
155 TCCAGGAGGA GGAGGAGACA ACTCGTCCTG AGCTGGGCAA TGAGGTGGTG GCAGTGGTGA 960
156 CACCACCAGC AGCACCAGGG CTGGGCAAGA ATGCAGAGCC GGGGCTCATC GACAACACAA 1020
157 TAGAGTCGGG CAGCTCGGCT GCTCAGCTCC CCCAGAAAA CATCCTGGAG AGGAAGGAA 1079

```

159 (2) INFORMATION FOR SEQ ID NO: 5:

160 (i) SEQUENCE CHARACTERISTICS:

161 (A) LENGTH: 447 base pairs

162 (B) TYPE: nucleic acid

163 (C) STRANDEDNESS: single

164 (D) TOPOLOGY: linear

165 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

```

167 ATGGCGCCTG TCTGCCTGTT TGCGCCGCTG CTGCTGTTGC TCCTCGGAGG TTTCCCCGTC 60
168 GCCCCAGGCG AGTCGATTCG AGAGACTGAG GTCATAGACC CCCAGGACCT CCTGGAAGGC 120
169 AGATACTTCT CTGGAGCCCT CCCGGACGAT GAAGACGCTG GGGGCCTTGA GCAGGACTCT 180
170 GACTTTGAGC TGTCGGGTTC CGGAGATCTA GATGACACGG AGGAGCCCAG GACCTTCCCT 240
171 GAGGTGATTT CACCCTTGGT GCCACTAGAT AACCACATCC CCGAGAATGC CCAGCCTGGC 300
172 ATCCGTGTCC CCTCAGAGCC CAAGGAACTG GAAGAGAATG AGGTCATTCC CAAAAGGGTC 360
173 CCCTCCGACG TGGGGGATGA CGATGTGTCC AACAAAGTGT CCATGTCCAG CACTTCCCAG 420
174 GGCAGCAACA TTTTGAAG AACTGAG 447

```

176 (2) INFORMATION FOR SEQ ID NO: 6:

177 (i) SEQUENCE CHARACTERISTICS:

178 (A) LENGTH: 1590 base pairs

179 (B) TYPE: nucleic acid

180 (C) STRANDEDNESS: single

181 (D) TOPOLOGY: linear

182 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

```

184 ATGGAGCTCC GGGCCGAGG CTGGTGGCTG CTGTGCGCGG CCGCCGCGCT AGTCGCCTGC 60
185 GCCCGCGGGG ACCCGCCAG CAAGAGCCGG AGCTGCAGCG AAGTCCGCCA GATCTACGGG 120
186 GCTAAGGGCT TTAGCCTGAG CGACGTGCCC CAGGCAGAGA TCTCGGGAGA GCACCTGCGG 180
187 ATCTGCCCCC AGGGCTACAC CTGCTGCACC AGTGAGATGG AGGAGAACCT GGCCAACCAC 240
188 AGCCGGATGG AGCTGGAGAC CGCACTCCAC GACAGCAGCC GTGCCCTGCA GGCTACACTG 300
189 GCCACCCAGC TGCATGGCAT CGATGACCAC TTCCAGCGCC TGCTGAATGA CTCGGAGCGT 360
190 AACTGCAGG ATGCTTTTCC CGGGGCCTTT GGGGACCTGT ACACGCAGAA CACTCGGGCC 420
191 TTCCGGGACC TGTATGCTGA GCTGCGTCTC TACTACCGAG GGGCCAACCT ACACCTTGAG 480
192 GAGACACTGG CCGAGTTCTG GGCACGGCTG CTGGAGCGTC TCTTCAAGCA GCTGCACCCC 540
193 CAGCTTCTGC TGCCCGATGA CTATCTGGAC TGCCTGGGCA AGCAGGCAGA GGCAGTGGG 600
194 CCGTTTGGGG ATGCCCCCTCG AGAACTGCGC CTGAGGGCCA CCCGTGCTTT TGTGGCGGCA 660
195 CGATCCTTTG TGCAGGGCCT GGGTGTGGCC AGTGACGTAG TCCGAAAGGT GGCCCAGGTT 720
196 CCTCTGGCCC CAGAATGTTC TCGGGCTGTC ATGAAGTTGG TCTACTGTGC CCATTGCCGG 780
197 GGAGTCCCTG GTGCCCGGCC CTGTCCCGAC TATTGCCGAA ATGTGCTCAA AGGCTGCCTT 840
198 GCCAACCAGG CCGACCTGGA TGCCGAGTGG AGGAACCTCC TGGACTCCAT GGTGCTCATC 900
199 ACTGACAAGT TCTGGGGCCC GTCGGGTGCG GAGAATGTCA TTGGCAGTGT GCATATGTGG 960
200 CTGGCGGAGG CCATCAACGC CCTCCAGGAC AACAAAGGACA CACTCACAGC TAAGGTCATC 1020

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/145,916C

DATE: 03/06/2002

TIME: 10:03:34

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\03062002\I145916C.raw

```

201 CAGGGCTGCG GAAACCCCAA GGTCAATCCC CATGGCTCTG GGCCTGAGGA GAAGCGTCGC 1080
202 CGTGGCAAAC TGGCACTGCA GGAGAAGTCC TCCACAGGTA CTCTGGAAAA GCTGGTCTCT 1140
203 GAGGCCAAGG CCCAGCTCCG AGACATTGAG GACTACTGGA TCAGCCTCCC AGGGACACTG 1200
204 TGTAGTGAGA AGATGGCCAT GAGTCCTGCC AGCGATGACC GCTGCTGGAA TGGGATTTC 1260
205 AAGGGCCGGT ACCTACCTGA GGTGATGGGT GATGGGCTGG CCAACCAGAT CAACAACCCT 1320
206 GAAGTGGAGG TGGACATCAC CAAGCCGGAT ATGACCATCC GGCAGCAGAT CATGCAGCTC 1380
207 AAGATCATGA CCAACCGTTT ACGTGGCGCC TACGGTGGCA ATGATGTGGA CTTCCAGGAT 1440
208 GCCAGTGATG ACGGCAGTGG CTCCGGCAGC GGTGGCGGAT GCCCAGATGA CGCCTGTGGC 1500
209 CGGAGGGTCA GCAAGAAGAG CTCCAGCTCC CGGACCCCCT TGACCCATGC CCTCCCCGGC 1560
210 TTGTCAGAAC AGGAGGGACA GAAGACCTCG 1590

```

212 (2) INFORMATION FOR SEQ ID NO: 7:

213 (i) SEQUENCE CHARACTERISTICS:

214 (A) LENGTH: 531 amino acids

215 (B) TYPE: amino acid

216 (C) STRANDEDNESS: single

217 (D) TOPOLOGY: linear

218 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

```

220 Met Glu Leu Arg Ala Arg Gly Trp Trp Leu Leu Cys Ala Ala Ala Ala
221 1 5 10 15
222 Leu Val Ala Cys Ala Arg Gly Asp Pro Ala Ser Lys Ser Arg Ser Cys
223 20 25 30
224 Ser Glu Val Arg Gln Ile Tyr Gly Ala Lys Gly Phe Ser Leu Ser Asp
225 35 40 45
226 Val Pro Gln Ala Glu Ile Ser Gly Glu His Leu Arg Ile Cys Pro Gln
227 50 55 60
228 Gly Tyr Thr Cys Cys Thr Ser Glu Met Glu Glu Asn Leu Ala Asn His
229 65 70 75 80
230 Ser Arg Met Glu Leu Glu Thr Ala Leu His Asp Ser Ser Arg Ala Leu
231 85 90 95
232 Gln Ala Thr Leu Ala Thr Gln Leu His Gly Ile Asp Asp His Phe Gln
233 100 105 110
234 Arg Leu Leu Asn Asp Ser Glu Arg Thr Leu Gln Asp Ala Phe Pro Gly
235 115 120 125
236 Ala Phe Gly Asp Leu Tyr Thr Gln Asn Thr Arg Ala Phe Arg Asp Leu
237 130 135 140
238 Tyr Ala Glu Leu Arg Leu Tyr Tyr Arg Gly Ala Asn Leu His Leu Glu
239 145 150 155 160
240 Glu Thr Leu Ala Glu Phe Trp Ala Arg Leu Leu Glu Arg Leu Phe Lys
241 165 170 175
242 Gln Leu His Pro Gln Leu Leu Leu Pro Asp Asp Tyr Leu Asp Cys Leu
243 180 185 190
244 Gly Lys Gln Ala Glu Ala Leu Arg Pro Phe Gly Asp Ala Pro Arg Glu
245 195 200 205
246 Leu Arg Leu Arg Ala Thr Arg Ala Phe Val Ala Ala Arg Ser Phe Val
247 210 215 220
248 Gln Gly Leu Gly Val Ala Ser Asp Val Val Arg Lys Val Ala Gln Val
249 225 230 235 240
250 Pro Leu Ala Pro Glu Cys Ser Arg Ala Val Met Lys Leu Val Tyr Cys
251 245 250 255

```

VERIFICATION SUMMARY

DATE: 03/06/2002

PATENT APPLICATION: US/09/145,916C

TIME: 10:03:35

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\03062002\I145916C.raw

L:22 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]

L:23 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]